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Abstract Submitted
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Investigation of the multimode classical Rayleigh-Taylor instability* K. S. BUDIL, B. A. REMINGTON, S. V. WEBER, T. A. PEYSER, K. O. MIKAELIAN, T. S. PERRY, Lawrence Livermore National Laboratory, A. M. RUBENCHIK, University of California, Davis — We are conducting experiments to investigate the evolution of the Rayleigh-Taylor (RT) instability from an initial multimode perturbation placed at an interface embedded between a 40 μm thick CH(Br) ablator and a 15 μm thick Ti payload.[1] Multimode perturbations consisting of 2, 10, and 20 initial modes have been investigated. As the RT evolution proceeds into the nonlinear regime, a Haan-type collective saturation and an *inverse cascade* are predicted, wherein successively longer wavelength structures will begin to dominate the flow. Experiments have been devised to probe both the early stages of this evolution, characterized by bubble merger processes, as well as the late time prediction of an inverse cascade. We will describe ongoing experiments designed to observe this saturation and cascade. *Work performed under the auspices of the U. S. Department of Energy by the Lawrence Livermore National Laboratory under contract number W-7405-ENG-48.

[1]K. S. Budil *et al.*, *Phys. Rev. Lett* **76**, 4536 (1996); *Rev. Sci. Instrum.*, in press (1997).

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